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13-DV-132639A

1. (Original) In a gas turbine engine which includes (1) an igniter, (2) a cable running from an exciter to the igniter which delivers electrical power to the igniter, (3) a first conductive shield surrounding the cable and connected to the engine, and (4) a second conductive shield extending from the external conductive shield and surrounding the igniter, a method comprising:

- a) maintaining a sensor adjacent the igniter;
- b) detecting a current pulse in either the first or second conductive shields, or both; and
- c) issuing a signal indicating presence of spark when a current pulse is detected.

2. (Original) In a gas turbine engine which includes (1) an igniter, (2) a cable running from an exciter to the igniter which delivers electrical power to the igniter, (3) a first conductive shield surrounding the cable and connected to the engine, and (4) a second conductive shield extending from the external conductive shield and surrounding the igniter, apparatus comprising:

- a) a coil adjacent the igniter;
- b) means for detecting a current pulse in either the first or second conductive shield, or both; and
- c) means for issuing a signal indicating presence of spark when a current pulse is detected.

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3. (Original) Apparatus for detecting spark, comprising:

- a) a power source which applies a high voltage to a conductor connected to a spark gap, to cause dielectric breakdown in the spark gap;
- b) a current path for carrying return current from the spark gap to the power source when breakdown occurs;
- c) a conductive shield around the conductor; and
- d) a detector for detecting current in the conductive shield, and issuing a signal indicating presence of spark in response.

4. (Original) Apparatus according to claim 3, wherein the current path leads to a system ground.

5. (Original) Apparatus according to claim 4, wherein the conductive shield is connected to a system ground.

6. (Original) Apparatus according to claim 3, wherein the spark occurs in a gas turbine engine.

7. (Original) Apparatus in a gas turbine engine, comprising:

- a) an igniter which is
 - i) surrounded by a housing, and
 - ii) fed by a power cable which is surrounded

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by a conductive shield which is connected to the housing; and

- b) a detector for
 - i) detecting current in the shield, housing, cable, or a combination thereof, but without contacting the cable, and,
 - ii) in response, issuing a signal indicating presence of spark in the igniter.

8. (Original) Apparatus according to claim 7, wherein the engine powers an aircraft, and the signal is delivered to a pilot station in the aircraft.

9. (Original) Apparatus according to claim 7, wherein the detector comprises:

- c) a coil, adjacent the shield, in which currents are induced.

10. (Original) Apparatus, comprising:

- a) a gas turbine engine having a frame or casing having a potential defined as DC ground;
- b) an igniter in the engine;
- c) a supply cable which supplies current pulses to the igniter;

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- d) a conductive shield around the supply cable, which connects to a housing of the igniter, wherein the shield and the housing are connected to said ground potential;
- e) an exciter which provides said current to the igniter, and which receives return current from the igniter through
 - i) said shield, and
 - ii) a second path;
- f) a detector adjacent said housing, which detects one or more of the following:
 - i) current pulses in the cable;
 - ii) current pulses in the housing; or
 - iii) differential between current pulses in the cable and current pulses in the housing.

11. (Original) Apparatus according to claim 10, wherein the second path comprises the engine frame or casing.

12. (Original) Apparatus according to claim 10, wherein the detector comprises a coil.

13. (New) Apparatus according to claim 7, wherein the detector is adjacent the housing at a location where the housing surrounds the igniter.

14. (New) Apparatus according to claim 7, wherein
- i) the conductive shield acts as electrical shielding for the cable prior to entry into the housing and the housing acts as electrical shielding for the cable within the housing, and
 - ii) the detector surrounds part of the cable which is shielded by the grounded housing.
15. (New) Apparatus according to claim 7, wherein
- i) the conductive shield and the housing are connected in series, and together form a continuous shield for the cable; and
 - ii) not all current flowing in the cable returns through said continuous shield, so that currents in the cable and continuous shield do not completely cancel each other.
16. (New) Apparatus according to claim 7, wherein
- i) an exciter generates current;
 - ii) the current enters the igniter through the cable,
 - iii) part of the current returns to the

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exciter through the conductive shield, and
iv) another part of that current returns to
the exciter through another path.

17. (New) Apparatus according to claim 16, wherein current in the cable does not completely cancel current in the housing surrounding the cable.

18. (New) Apparatus according to claim 16, wherein current in the cable does not completely cancel current in the conductive shield surrounding the cable.